



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,390	09/26/2003	William Voorhees	03-0961	8526
24319 7590 02/05/2007 LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 MILPITAS, CA 95035			EXAMINER SCOTT, RANDY A	
			ART UNIT	PAPER NUMBER
			2109	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/05/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/672,390

Applicant(s)

VOORHEES ET AL.

Examiner

Randy Scott

Art Unit

2109

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

Detailed Action

This Office Action is in response to the Application filed September 26, 2003.

Drawings

1. The drawings are objected to because reference character "103" has been used to designate both all of the target devices in drawing figure 1. The applicant should label each target device with a specific reference number in order to clearly embody a connection from each expander to each particular target device. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities:

On pg. 2, sec. 1, line 7 the disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

On pg. 8, sec. 2, line 11 of the applicant's specification, the following term: "Target devices the 103" should be --Target devices 103-- to improve the clarity of the specification.

On pg. 10, sec. 1, line 5 11 of the applicant's specification, the following term: "Those killed in the art" should be --Those skilled in the art-- to improve the clarity of the specification.

Appropriate correction is required.

Claim Objections

Claims 1 – 10, and 15-20 are objected to because of the following informalities:

On line 4 of claim 1 the term "ports of the discovered devices" should be --ports of discovered devices--.

On line 4 of claim 1 the term "ports" should be --said ports--.

On line 5 of claim 1 the term "routing attributes" should be --said routing attributes--.

On line 2 of claim 2 the term "configuring" should be preceded by a comma.

On line 2 of claim 3 the term "devices" should be --said devices--.

On line 2 of claim 4 the term "all paths" should be --said paths--.

On line 2 of claim 5 the term "ports" should be preceded by a comma.

On line 2 of claim 5 the term “discovering devices” should be --discovering said devices-- and the term “discovering ports” should be --discovering said ports--.

On line 3 of claim 5 the term “configuring ports” should be --configuring said ports--.

On line 1 of claim 6 the term “discovering devices” should be --discovering said devices--.

On line 5 of claim 6 the term “SMP Discover request” should be --said SMP Discover request--.

On line 6 of claim 6 the term “identifying the other devices” should be --identifying other devices--.

On line 1 of claim 7 the term “discovering ports” should be --discovering said devices--.

On line 2 of claim 7 the term “discovered devices” should be --said discovered devices--.

On line 3 of claim 7 the term “a first device” should be --the first device--.

On line 4 of claim 7 the term “a neighboring device” should be --the neighboring device--.

On line 6 of claim 7 the term “number of ports” should be --number of said ports--.

On line 2 of claim 8 the term “a first device” should be --said first device--.

On line 2 of claim 8 the term “a second device” should be --said second device--.

On line 3 of claim 8 the term “routing attribute” should be --said routing attribute--.

On line 4 of claim 8 the term “a port” should be --said port--.

On line 3 of claim 9 the term “routing attribute” should be --said routing attribute--.

On line 3 of claim 9 the term “a port” should be --said port--.

On line 2 of claim 9 the term “the domain” should be --a domain--.

On line 2 of claim 10 the term “routing attributes” should be --the routing attributes--.

On line 2 of claim 16 the term “routing attributes” should be --the routing attributes--.

On line 2 of claim 16 the first use of the term “and” should be replaced with a comma.

On line 3 of claim 16 the term "port connection" should be --the port connections--.

On line 4 of claim 16 the term "devices" should be --the devices--.

On line 3 of claim 17 the term "devices" should be --the devices--.

On line 4 of claim 17 the term "devices" should be --the devices--.

On line 4 of claim 17 the first use of the term "and" should be replaced with a comma.

On line 4 of claim 17 the term "ports" should be --the ports--.

On line 3 of claim 18 the first use of the term "and" should be replaced with a comma.

On line 4 of claim 18 the term "ports of devices" should be --the ports of devices--.

On line 4 of claim 18 the term "connections" should be --the connections--.

On line 3 of claim 19 the term "response messages" should be --the response messages--.

On line 4 of claim 19 the term "devices" should be --the devices--.

On line 4 of claim 20 the term "devices" should be used in singular tense.

On line 4 of claim 20 the term "a first device" should be --the first device--.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1 - 20 are rejected under 35 USC 101 because the claimed invention is directed to non-statutory subject matter.

In claim 1, the limitations of automatically discovering devices of the SAS network domain, automatically discovering ports of the discovered devices, and automatically

Art Unit: 2109

configuring routing attributes of discovered ports are recited. The specific limitation is non-statutory because the applicant failed to specify a correlating result as to any tangible result occurring once the routing attributes of discovered parts are configured. The above claim lacks tangible output because the claim fails to mention any real world use occurring thereafter once the routing attributes of discovered parts are configured.

Claims 2-9 fail to resolve the deficiencies of claim 1 because there isn't any added language in either dependent claim that includes a limitation that would further limit claim 1 into producing a tangible output or that would cause claim 1 to produce a real world result.

In claim 10, the limitations of a plurality of expander devices providing a plurality of ports within the domain wherein each port may have an associated routing attribute, a domain control element coupled to at least one of the plurality of expander devices operable to configure routing attributes of the plurality of ports, wherein the domain control element is operable to configure the routing attributes of the ports by traversing port connections between the expander devices are recited. The specific limitation is non-statutory because the applicant failed to specify a correlating result as to any executable result occurring once the domain control element is coupled to at least one of the plurality of expander devices. The above claim states that the expander device is operable to configure routing attributes and that the domain control is operable to configure the routing attributes, but the above claim lacks tangible output because the claim fails to mention any real world use occurring thereafter once the routing attributes of discovered parts are configured.

Claims 11-13 fail to resolve the deficiencies of claim 10 because there isn't any added language in either dependent claim that includes a limitation that would further limit claim 1 into producing a tangible output or that would cause claim 10 to produce a real world result.

In claim 14, the limitations of means for discovering the topology of the SAS network domain by traversing port connections between devices of the domain and means for configuring SAS routing attributes associated with ports of devices of the domain in response to discovery of the topology of the domain are recited. This particular claim is non-statutory because the applicant failed to include a limitation that would provide for a tangible result. The limitation of claim 14 lacks tangible result because no real world output is provided after the SAS routing attributes are configured.

Claims 15-20 fail to resolve the deficiencies of claim 14 because there isn't any added language in either dependent claim that includes a limitation that would further limit claim 1 into producing a tangible output or that would cause claim 14 to produce a real world result.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless - -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the

United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1 and 2 are rejected under 35 USC 102 (e) as being anticipated by Beckett et al (Pub # US 2005/0015532).

With respect to claim 1 Beckett et al teach a method of configuring routing attributes of ports within an SAS domain, comprising: automatically discovering devices of the SAS network domain (see e.g. [0039], which implies that an integrated circuit may be capable of discovering one or more devices for communication in a SAS domain); automatically discovering ports of the discovered devices (see e.g. [0036], which implies that circuitry embedded in the SAS domain may implement and carry out SAS port control procedures); and automatically configuring routing attributes of discovered ports (see e.g. [0036], which implies that signals are embedded in the SAS domain for the transmission of signals for carrying out ports control protocols).

With respect to claim 2 Beckett et al teach a method wherein the steps of discovering devices, discovering ports and configuring ports each include a step of exchanging SMP messages (see e.g. [0035], which implies that the data link layer circuitry may include an SMP link layer).

11. Claims 10-13 are rejected under 35 U.S.C. 102 (e) as being anticipated by Elliott et al (Pub# US 2005/0066100).

With respect to claim 10 Elliott et al teach a method including the limitation for a plurality of expander devices providing a plurality of ports within the domain wherein each port may have an associated routing attribute (see e.g. [0013], which implies that the SAS controller

Art Unit: 2109

is coupled to an expander, which routes information packets through a ports to an appropriate destination within a network), a limitation for a domain control element coupled to at least one of the plurality of expander devices operable to configure routing attributes of the plurality of ports, wherein the domain control element is operable to configure the routing attributes of the ports by traversing port connections between the expander devices (see e.g. [0016-0017], which implies that each expander includes a routing controller for transmitting the flow of information received by one port to another expander through another port and prevents multiple paths for the same address).

With respect to claim 11 Elliott et al teach a method including the limitation wherein the domain control element comprises a SAS initiator device coupled to at least one of the plurality of expander devices (see e.g. [0004], which implies tat a SAS expander tree is associated with one or more initiators for response to commands to retrieve or to write data).

With respect to claim 12 Elliott et al teach a method including the limitation wherein the domain control element comprises an SAS expander device coupled to at least one of the plurality of expander devices (see e.g. [0004], which implies that an expander can be coupled to other expanders to further expand the capacity to attach peripheral devices).

With respect to claim 13 Elliott et al teach a method including a limitation wherein the each of the expander devices comprises a routing table and wherein the domain control element is further adaptable to configure the routing tables of the expander devices (see e.g. [0020], which implies that an expander stores routing tables and that a routing controller is able to access each routing table to allocate and remap route entries in each routing table).

12. Claims 14, 17 - 19 are rejected under 35 U.S.C. 102 (e) as being anticipated by Grabauskas et al (Pub# US 2003/0076788).

With respect to claim 14 Grabauskas et al teach a method including a limitation of a means for discovering the topology of the SAS network domain by traversing port connections between devices of the domain (see abstract, which implies that the topology of a switch, including a plurality of switch ports, in two networks is discovered by connecting each I/O and initiator device to a corresponding switch port) and means for configuring SAS routing attributes associated with ports of devices of the domain in response to discovery of the topology of the domain (see e.g. [0022], which implies that switch ports in the network are configured in correlation with discovery of the topology of the network domain).

With respect to claim 17 Grabauskas et al teach a method including a the limitation of a means for exchanging SMP messages between devices of the domain to identify devices (see abstract, which implies that I/O devices are connected to switch ports and communicate by requesting unique addresses of other devices within the network), to identify ports of the devices (see abstract, which implies that information on switch ports and corresponding devices is submitted within the network), and to identify connections between the ports of the devices (see abstract, which implies that the topology of a plurality of ports within a network is discovered).

With respect to claim 18 Grabauskas et al teach a method including a the limitation of a means for exchanging a SMP Report General request and response messages to identify ports pf devices and connections between ports of devices (see e.g. [0009], which implies that the topology of the network is discovered by an initiator device in order to request the network address of each device and connection of each device relating to each switch port)

With respect to claim 19 Grabauskas et al teach a method including the limitation of a means for exchanging SMP requests and response messages to devices of the domain (see abstract, which implies that each device returns the submitted query to the initiator in regards to the address of each port device and its connection status).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

12. Claim 3 is rejected under 35 U.S.C. 103 as being unpatentable over Beckett et al (Pub# US 2005/0015532) in view of Elliott et al (Pub # US 2005/0066100)

In reference to claims 3 Beckett et al (Pub# US 2005/0015532) teach a method for discovering ports and configuring ports including a step of exchanging SMP messages (see e.g. [0035]).

Beckett et al explicitly teaches the limitations as disclosed above except for configuring routing table information within devices of the SAS network domain wherein said routing table information is sufficient to identify paths in the SAS network domain to enable the exchange of SMP messages.

The general concept configuring routing table information within devices of the SAS network domain wherein said routing table information is sufficient to identify paths in the SAS network domain to enable the exchange of SMP messages is well known within the art as illustrated by Elliott et al which discloses a method including limitations for configuring routing table information within devices (see e.g. [0013], which implies that an expander receives information packets from a port and routes the information packets and SMP commands through another port in the SAS domain).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beckett et al to include the use of routing table information within devices of the SAS network domain wherein said routing table information is sufficient to identify paths in the SAS network domain to enable the exchange of SMP messages as taught by Elliott et al in order to improve upon topology techniques in a SAS network, as implied in e.g. [0013], lines 1-11 of Elliott et al.

13. Claim 4 is rejected under 35 U.S.C. 103 as being unpatentable over Beckett et al (Pub# US 2005/0015532) in view of Doelz (Pat # US 4,156,798)

In reference to claim 4 Beckett et al (Pub# US 2005/0015532) teach a method for discovering ports and configuring ports including a step of exchanging SMP messages (see e.g. [0035]).

Beckett et al explicitly teaches the limitations as disclosed above except for configuring routing table information to identify all paths for exchange of messages within the SAS network domain.

The general concept configuring routing table information to identify all paths for exchange of messages within the SAS network domain is well known within the art as illustrated by Doelz which discloses a method including limitations for configuring routing table information to identify paths for exchange of messages within the SAS network domain (see sec. 170, lines 36-47, which implies that each network processor includes a routing table for indicating paths that messages might be exchanged).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beckett et al to include the use of configuring routing table information to identify all paths for exchange of messages within the SAS network domain as taught by Dolez in order to improve upon path detection in the SAS, as implied in sec. 170, lines 36-45 of Doelz.

14. Claim 5 is rejected under 35 U.S.C. 103 as being unpatentable over Beckett et al (Pub# US 2005/0015532) in view of Doelz (Pat # US 4,156,798)

In reference to claim 5 Beckett et al (Pub# US 2005/0015532) teach a method including limitations for discovering devices, discovering ports, and configuring ports (see e.g. [0039]).

Beckett et al explicitly teaches the limitations as disclosed above except for wherein the step of completely configuring is substantially integrated with the steps of discovering devices, ports, and configuring ports.

The general concept of integrating a configured routing table with the steps of discovering devices, discovering ports, and configuring ports is well known within the art as illustrated by Doelz who discloses a method including limitations for configuring routing table information to identify paths for exchange of messages (see sec. 170, lines 36-47) and discovering devices (see sec. 8, lines 6 – 22, which implies that a host adapter provides communication between a host machine in the network and a plurality of terminal devices), ports, and configuring ports (see sec. 8, lines 53-65, which implies that the network has a two port buffer memories for providing communication between different elements of the communication network).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beckett et al to include the use of a limitation wherein the step of completely configuring is substantially integrated with the steps of discovering devices, ports, and configuring ports in order to systematically control the flow of communication in a network, as implied in sec. 8 lines 6-65 of Doelz.

15. Claim 6 is rejected under 35 U.S.C. 103 as being unpatentable over Beckett et al (Pub# US 2005/0015532) in view of Smith et al (Pat # US 5,335,227)

In reference to claim 6 Beckett et al (Pub# US 2005/0015532) teach a method including limitations for discovering devices, discovering ports, and configuring ports (see e.g. [0039]).

Beckett et al explicitly teaches the limitations as disclosed above except for transmitting an SMP Discover request from a first device to a neighboring device of the first device and

receiving an SMP Discover response in said first device from said neighboring device identifying the other devices coupled to ports of said neighboring device.

The general concept of transmitting an SMP Discover request from a first device to a neighboring device of the first device and receiving an SMP Discover response in said first device from said neighboring device identifying the other devices coupled to ports of said neighboring device is well known in the art as illustrated by Smith et al which discloses a method including limitations for transmitting an SMP Discover request from a first device to a neighboring device of the first device (see sec. 3, lines 14 – 34 & lines 59 – 68, which implies that a device coupled to one of a plurality of ports may communicate with a device coupled to another port within the network that is tied to a conductor that indicates which port a device, such as a terminal, can be connected) and a limitation for receiving an SMP Discover response in said first device from said neighboring device identifying the other devices coupled to ports of said neighboring device (see sec. 6, lines 44 - 62, which implies that the plurality of devices connected to each port provides an SMP frame including a device address for each device coupled to one of a plurality of ports).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beckett et al to include the use of a limitation for transmitting an SMP Discover request from a first device to a neighboring device of the first device and receiving an SMP Discover response in said first device from said neighboring device identifying the other devices coupled to ports of said neighboring device in order to provide for effective quality of service in a network, as implied in sec. 3, lines 14 – 68 of Smith et al.

16. Claim 7 is rejected 35 U.S.C. 103 as being unpatentable over Beckett et al (Pub# US 2005/0015532).

In reference to claim 16, Grabauskus et al teach a method including a limitation of automatically discovering ports of the discovered devices (see e.g. [0036], which implies that circuitry embedded in the SAS domain may implement and carry out SAS port control procedures).

Beckett et al explicitly teach the limitations as disclosed above except for transmitting an SMP report general request from a first device to a neighboring device of the first device and receiving an SMP report general response in said first device from said neighboring device identifying the number of ports within said neighboring device.

The general concept of transmitting an SMP report general request from a first device to a neighboring device of the first device and receiving an SMP report general response in said first device from said neighboring device to identify the number of ports within said neighboring device is well known in the art as obvious design optimization because the concept is a common feature in the art of routing information between port devices in a network.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the step of transmitting an SMP report general request from a first device to a neighboring device of the first device and receiving an SMP report general response in said first device from said neighboring device identifying the number of ports within said neighboring device in order to improve upon routing capabilities in a network, as implied in e.g. [0036] of Beckett et al.

17. Claim 8 is rejected 35 U.S.C. 103 as being unpatentable over Beckett et al (Pub# US 2005/0015532) in view of Elliott et al (Pub# US 2005/0066100).

In reference to claim 8 Beckett et al teach a method including the limitation for automatically configuring routing attributes of discovered ports (see e.g. [0036], which implies that signals are embedded in the SAS domain for the transmission of signals for carrying out ports control protocols).

Beckett et al explicitly teaches the limitations as disclosed above except for transmitting an SMP request from a first device to a second device wherein the SMP request includes vendor unique information identifying a routing attribute to be configured for port of said second device.

The general concept of transmitting an SMP request from a first device to a second device wherein the SMP request includes vendor unique information identifying a routing attribute to be configured for port of said second device is well known in the art as illustrated by Elliott et al, which teaches a method including the limitation for transmitting an SMP request from a first device to a second device wherein the SMP request includes vendor unique information identifying a routing attribute to be configured for port of said second device (see e.g. [0021- 0024], which implies that each expander in a SAS network may issue SMP commands to phys of other expanders through a routing controller, in order to configure routing attributes of an expander).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beckett et al to include the use of a limitation transmitting an SMP request from a first device to a second device wherein the SMP request includes vendor unique

Art Unit: 2109

information identifying a routing attribute to be configured for port of said second device in order to maximize routing techniques in a network, as implied in e.g. [0021] of Elliott et al.

18. Claim 9 is rejected under 35 U.S.C. 103 Beckett et al (Pub# US 2005/0015532) in view of Bearden et al (Pub# US 2003/0097438).

In reference to claim 9, Beckett et al teach a method including the limitation for automatically configuring routing attributes of discovered ports (see e.g. [0036]).

Beckett et al explicitly teaches the limitations as disclosed above except for traversing devices of the SAS network domain to configure routing attributes of ports of devices of the SAS network domain.

The general concept of traversing devices of the SAS network domain to configure routing attributes of ports of devices of the SAS network domain is well known in the art as illustrated by Bearden et al, which teaches a method including the limitation for traversing devices in a network to configure connections between ports in order to discover the topology of a network (see e.g. [0090], which implies that the topology of the network is discovered by using a layer path to traverse devices hidden in a layer of the network).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Beckett et al to include the use of a limitation traversing devices of the SAS network domain to configure routing attributes of ports of devices of the SAS network domain in order to improve upon routing techniques in a network, as implied in e.g. [0090] of Bearden et al.

19. Claim 15 is rejected under 35 U.S.C. 103 as being unpatentable over Grabauskus et al (Pub# US 2003/0076788) in view of Elliott et al (Pub# US 2005/0066100).

In reference to claim 15, Grabauskus et al teach a method including a limitation of a means for discovering the topology of the SAS network domain by traversing port connections between devices of the domain (see abstract).

Grabauskus et al explicitly teach the limitations as disclosed above except for means for configuring routing tables in devices of the domain.

The general concept of a limitation for means for configuring routing tables in devices of the domain is well known within the art as illustrated by Elliott et al, which disclose a method for configuring routing tables in devices of a domain (see e.g. [0020], which implies that an expander stores routing tables and that a routing controller is able to access each routing table to allocate and remap route entries in each routing table).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Grabauskus et al to include the use of a limitation for configuring routing tables in devices of the domain in order to provide for an effective communications network, as implied in e.g. [0020] of Elliott et al.

20. Claim 16 is rejected 35 U.S.C. 103 as being unpatentable over Grabauskus et al (Pub# US 2003/0076788)

In reference to claim 16, Grabauskus et al teach a method including a limitation of a means for discovering the topology of the SAS network domain by traversing port connections between devices of the domain (see abstract) and means for configuring SAS routing attributes

associated with ports of devices of the domain in response to discovery of the topology of the domain (see e.g. [0022]).

Grabauskus et al explicitly teach the limitations as disclosed above except for means for configuring SAS routing attributes are substantially integrated so as to traverse port connection between devices of the domain only once.

The general concept of means for means for configuring SAS routing attributes are substantially integrated so as to traverse port connection between devices of the domain only once is well known in the art as obvious design optimization because the concept is a common feature in the art of routing information between port devices in a network.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the step of configuring SAS routing attributes are substantially integrated so as to traverse port connection between devices of the domain only once, in order to improve upon routing capabilities in a network, as implied in e.g. [0022] of Grabauskus et al.

21. Claim 20 is rejected 35 U.S.C. 103 as being unpatentable over Grabauskas et al (Pub# US 2003/0076788) in view of Elliott et al (Pub# US 2005/0066100).

In reference to claim 20, Grabauskus et al teach a method including a limitation of a means for configuring SAS routing attributes associated with ports of devices of the domain in response to discovery of the topology of the domain (see e.g. [0022]).

Grabauskus et al explicitly teach the limitations as disclosed above except for means for transmitting an SMP request having vendor unique information from a first device to a second

device to instruct the second device to configure the routing attribute of a port of the second device.

The general concept of transmitting an SMP request having vendor unique information from a first device to a second device to instruct the second device to configure the routing attribute of a port of the second device is well known in the art as illustrated by Elliott et al, which teaches a method including the limitation for transmitting an SMP request from a first device to a second device wherein the SMP request includes vendor unique information identifying a routing attribute to be configured for port of said second device (see e.g. [0021-0024], which implies that each expander in a SAS network may issue SMP commands to phys of other expanders through a routing controller, in order to configure routing attributes of an expander).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Grabauskus et al to include the use of a limitation transmitting an SMP request from a first device to a second device wherein the SMP request includes vendor unique information identifying a routing attribute to be configured for port of said second device in order to improve upon routing techniques in a SAS network, as implied in e.g. [0021] of Elliott et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy Scott whose telephone number is 571-270-1598. The examiner can normally be reached on Mon - Thurs. 7:30-5:00 p.m..

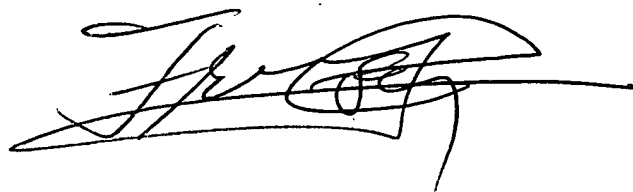
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

R.A.S.

30 January 2007

FRANTZ JULES
SUPERVISORY PATENT EXAMINER

A handwritten signature in black ink, appearing to read 'Frantz Jules', with a long horizontal line extending to the right.